REMARKS/ARGUMENTS

Claims 1-35 are pending in this application. Claims 5-7 have been amended.

The Examiner has objected to claims 5-7 as being of improper dependent form for failing to further limit the subject matter of a previous claim. Accordingly, claims 5-7 have been amended to correct the associated deficiencies as requested by the Examiner.

The Examiner has rejected claims 1-9 under 35 U.S.C. 103(a) as being unpatentable over Gadkaree ('026) in view of Claussen ('259). Applicants respectfully traverse the aforementioned rejection for the following reasons.

MPEP 2143 states:

> "To establish a prima facie case of obviousness three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be reasonable expectation of success. Finally, the prior art must teach or suggest all the claim limitations."

Applicants respectfully submit that the combination of Gadkaree and Claussen does not teach or suggest the elements or limitations of the present invention. The present invention requires a multicellular honeycomb structure composed of a ceramic material comprising a non-oxide polycrystalline phase constituting 10-70% by weight, with the remainder of the ceramic material constituting a cordierite phase, the non-oxide polycrystalline phase being selected from the group consisting of carbides, nitrides, and borides, wherein the non-oxide polycrystalline phase has a particle aspect ratio of less than 3. These elements or limitations are not found in the combination of Gadkaree and Claussen.

Gadkaree is directed to an activated carbon filter. The device is made either of a porous inorganic honeycomb support coated with activated carbon or of extruded activated carbon entirely (col. 2, lines 60-67). In the description in column 3, lines 25-43, Gadkaree provides an extensive list of suitable substrate materials which includes cordierite, mullite, clay, talc, zircon, zirconia, zirconates, zirconia-spinel, zeolites, magnesium alumino-silicates, spinel, alumina, silica, silicates, borides, alumino-silicates, e.g., porcelains, lithium aluminosilicates, alumina silica, feldspar, titania, fused silica, nitrides, borides, carbides, e.g., silicon carbide, silicon nitride and also mixtures thereof.

Even though, Gadkaree includes cordierite, silicon nitride and silicon carbide in this list, Gadkaree does not teach or provide any further guidance of how to obtain a structure having a cordierite phase and a secondary phase of silicon nitride or silicon carbide. In fact from the description provided it is not even clear if Gadkaree intended for such a structure to be possible. Gadkaree discloses that the preferred material of choice for the support substrate in the activated carbon device is cordierite (col. 3, lines 41-43, examples provided in cols. 14 and 15). Therefore, Gadkaree neither teaches a non-oxide polycrystalline phase constituting 10-70% by weight, with the remainder of the ceramic material constituting a cordierite phase,

nor a material including a combination of a cordierite phase and a non-oxide polycrystalline second phase, such as silicon carbide or silicon nitride. At best Gadkaree teaches a cordierite honeycomb support for an activated carbon filter.

Claussen is directed to a method of making cordierite ceramic moldings by mixing cordierite powder with between 1-50 wt.% of an additive from a combination of powder or whisker silicon nitride, silicon carbide, zirconium oxide, aluminum oxide, magnesium oxide, mullite, zircon and boron carbide (col. 1, lines 43-62). Claussen teaches that advantageous additive combinations include silicon nitride, zirconium oxide, and gamma-aluminum oxide, or silicon nitride powder, zirconium oxide powder, silicon nitride whiskers and silicon carbide whiskers (col. 1, lines 54-62). The examples provided also disclose similar combinations of additives. Therefore, the resulting ceramic is a multiphase material with cordierite as the primary phase, the remaining phases corresponding to the additives used (in all examples provided at least two). However, Claussen does not teach or suggest a two-phase ceramic material of a cordierite phase and a nitride or carbide or boride phase, as is required in the present invention.

Since neither Gadkaree nor Claussen nor the combination therefore fails to teach or disclose the required elements of the present invention, applicants respectfully submit that the Examiner has not established a prima facie case of obviousness. Accordingly, applicants request reconsideration of the rejection of claims 1-9 under 35 U.S.C. 103(a) over Gadkaree ('026) in view of Claussen ('259).

The Examiner has rejected claims 10-22 under 35 U.S.C. 103(a) as being unpatentable over Gadkaree ('026) in view of Claussen ('259). Applicants respectfully traverse the aforementioned rejection. For reasons given above neither Gadkaree nor Claussen nor the combination therefore teaches or discloses the elements or limitations of the present invention. Gadkaree is directed to an activated carbon filter and Claussen to an improved process of making a cordierite molding. The present invention as claimed in claim 10 requires a diesel particulate filter comprising a wall-flow honeycomb body composed of a porous ceramic material and having a plurality of parallel end-plugged cell channels traversing the body from a frontal inlet end to an outlet end thereof, wherein the ceramic material comprises a non-oxide polycrystalline phase constituting 10-70% by weight, with the remainder of the ceramic material constituting a cordierite phase, the non-oxide polycrystalline phase being selected from the group consisting of carbides, nitrides, and borides, wherein the filter has an open porosity of at least 30% and a median pore size of at least 5 micrometers. Since neither Gadkaree nor Claussen nor the combination therefore fails to teach or disclose the required elements of the present invention, applicants respectfully submit that the Examiner has not established a prima facie case of obviousness. Accordingly, applicants request reconsideration of the rejection of claims 10-22 under 35 U.S.C. 103(a) over Gadkaree ('026) in view of Claussen ('259).

The Examiner has rejected claims 23-27 and 29-35 under 35 U.S.C. 103(a) as being unpatentable over Gadkaree ('026) in view of Claussen ('259). Applicants respectfully traverse the aforementioned rejection for the following reasons. The invention of claim 23 requires an oxide phase of selected from the group consisting of alkali aluminum silicates and alkaline earth aluminum silicates. Neither Gadkaree nor Claussen nor the combination thereof teaches or discloses this element, or the other elements of claim 23 and dependent claims 24-27 and 29-35. Accordingly, the present invention is not taught by these references,

and therefore a prima facie case of obviousness has not been established. Accordingly, applicants respectfully request reconsideration of the rejection of claims 23-27 and 29-35 over Gadkaree ('026) in view of Claussen ('259).

The Examiner has rejected claim 28 under 35 U.S.C. 103(a) as being unpatentable over Gadkaree ('026) in view of Claussen ('259) and further in view of Talmy ('534). Applicants respectfully traverse the aforementioned rejection. For reasons stated above neither Gadkaree nor Claussen nor the combination therefore does not teach the invention of claim 23 from which claim 28 depends. The further combination of Talmy with Gadkaree and Claussen does not cure this deficiency. Talmy is directed to a method of forming silicon nitride reinforced barium aluminum silicate or strontium aluminum silicate. These three cited references neither teach or disclose a diesel particulate filter which the present invention embodied in claim 28 requires. Therefore, a prima facie case of obviousness has not been established. Accordingly, applicants request reconsideration of the rejection of claim 28 under 35 U.S.C. 103(a) over Gadkaree ('026) in view of Claussen ('259) and further in view of Talmy ('534).

The Examiner has rejected claims 1-4 and 6-9 under 35 U.S.C. 103(a) as being unpatentable over Gadkaree ('026) in view of Cleveland ('215). Applicants respectfully traverse the aforementioned rejection for the following reasons. Gadkaree is directed to an activated carbon filter made either of a cordierite substrate coated with a layer of activated carbon or of extruded activated carbon entirely, as described above. Gadkaree does not teach or disclose a honeycomb structure made of a two-phase ceramic material having cordierite and a non-oxide second phase of carbides, nitrides or borides. Cleveland discloses a cordierite-silicon nitride composite having a silicon oxide coating. There is no description in Cleveland of the weight percent of cordierite and silicon nitride in the final ceramic material. The present invention requires a non-oxide polycrystalline phase constituting 10-70% by weight, with the remainder of the ceramic material constituting a cordierite phase. Therefore, applicants respectfully submit that the primary reference Gadkaree does not teach or suggest the present invention as embodied in claim 1, and claims 2-4 and 6-9 which depend there from, and that this deficiency is not cured by combining Gadkaree with Cleveland. Accordingly, a prima facie case of obviousness has not been established. Therefore, applicants respectfully request reconsideration of claims 1-4 and 6-9 under 35 U.S.C. 103(a) over Gadkaree ('026) in view of Cleveland ('215).

The Examiner has rejected claims 10-15, 17-27, 29, 30, and 32-35 under 35 U.S.C. 103(a) as being unpatentable over Gadkaree ('026) in view of Cleveland ('215). For reasons stated above for claims 1-4 and 6-9 applicants respectfully traverse this rejection. Further, neither Gadkaree nor Cleveland teach or suggest a diesel particulate filter which the present invention requires in independent claim 10 and dependent claims 11-15 and 17-22, and independent claim 23, and dependent claims 24-27, 29, 30, and 32-35. Accordingly, a prima facie case of obviousness has not been established. Therefore, applicants respectfully request reconsideration of claims 10-15, 17-27, 29, 30, and 32-35 under 35 U.S.C. 103(a) over Gadkaree ('026) in view of Cleveland ('215).

The Examiner has rejected claim 28 under 35 U.S.C. 103(a) as being unpatentable over Gadkaree ('026) in view of Cleveland ('215) and further in view of Talmy ('534). For reasons stated above neither Gadkaree nor Cleveland nor the combination therefore teach the invention of claim 23 from which claim 28 depends. The further combination of Talmy with

these references does not cure this deficiency. These three cited references neither teach or disclose a diesel particulate filter which the present invention embodied in claim 28 requires. Therefore, a prima facie case of obviousness has not been established. Accordingly, applicants request reconsideration of the rejection of claim 28 under 35 U.S.C. 103(a) over Gadkaree ('026) in view of Cleveland ('215) and further in view of Talmy ('534).

Based upon the above amendments, remarks, and papers of records, applicant believes the pending claims of the above-captioned application are in allowable form and patentable over the prior art of record. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Applicant believes that no extension of time is necessary to make this Reply timely. Should applicant be in error, applicant respectfully requests that the Office grant such time extension pursuant to 37 C.F.R. § 1.136(a) as necessary to make this Reply timely, and hereby authorizes the Office to charge any necessary fee or surcharge with respect to said time extension to the deposit account of the undersigned firm of attorneys, Deposit Account 03-3325.

Please direct any questions or comments to Anca C. Gheorghiu at (607) 974-3322.

Respectfully submitted,

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